MOBILE RADIO

DF-9014
LBI-3519F

INSTALLATION OF
MASTR Progress Line FLOOR MOUNT
TWO-WAY FM RADIO STATION COMBINATIONS

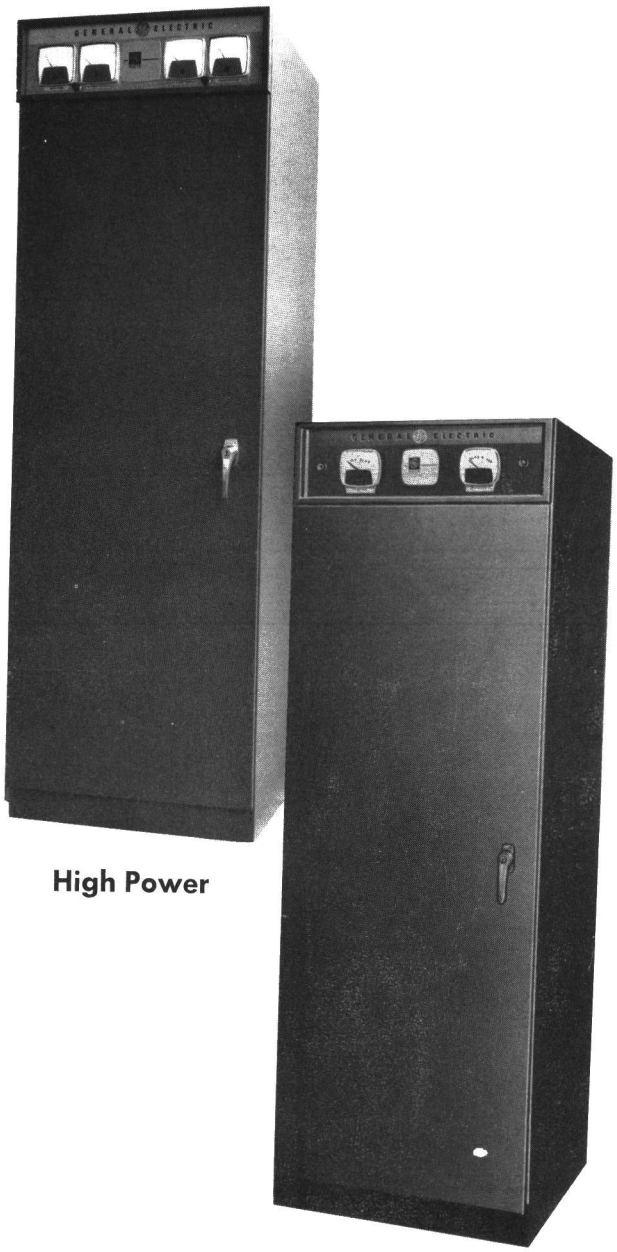
Style VM: FLOOR MOUNT

- **Medium Power**
  - **Remote Control**
  - **Repeater Control**
- **High Power**
  - **Remote Control**
  - **Repeater Control**

Your Floor Mount Station is built to your communication requirements. The deluxe station cabinets are designed for medium power output or high power output as remote or repeater control stations.

The 69-inch high station cabinet occupies a floor space of only 22 by 23 inches.

The racks contain adequate space for an additional receiver and transmitter, or options. The front and rear cabinet doors open more than 180° to insure maximum access to all equipment.



High Power

Medium Power

PLANNING SPECIFICATIONS

Dimensions 69" x 22" x 23"
(H x W x D)

Weight
- Medium power approx 245 lbs.
  - Shipping wt. approx 275 lbs.
- High power approx 395 lbs.
  - Shipping wt. approx 425 lbs.

Temperature Range −30° C to +60° C
(−22° F to +140° F)

Input Power @ 117 VAC, 50/60 Hz.
- Medium Power Stations
  - 2.9 Amps (max) 340 Watts transmit
  - 0.8 Amps (max) 95 Watts receive
- High Power Stations
  - 9.3 Amps (max) 1100 Watts transmit
  - 1.5 Amps (max) 176 Watts receive

GENERAL ELECTRIC

UNPACKING AND CHECKING EQUIPMENT

As you unpack the station combination, carefully inspect each item and check it off in the appropriate column below. If any damage has occurred to the equipment during shipment, file a claim with the freight carrier immediately.

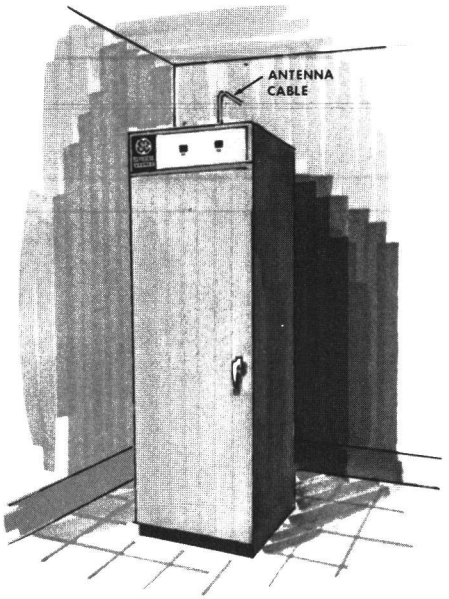
EQUIPMENT	REMOTE CONTROL	REPEATER CONTROL
Base Station	☐	☐
Power Cable 7491206-P1	☐	☐
Keys LL802	☐	☐
Alignment Tool 4038831-P2	☐	☐
Alignment Tool 4033530-G2	☐	☐
Military Microphone Model 4EM25A10/B10	☐	☐
Microphone Mounting Kit 7141414-G2	☐	☐
Speaker Model 4EZ16A20 (with VOLUME control)	☐	
Speaker Model 4EZ16A21		☐

Antennas, transmission lines, towers, and telephone lines are ordered separately from the station combination. The installer will normally provide any miscellaneous hardware as part of his installation "package". The user must provide the 117-VAC power service of adequate capacity and regulation as well as any telephone lines that may be required for "Remote Control" operation.

PLANNING THE FLOOR MOUNT INSTALLATION

The illustrations in this manual of typical Floor Mount installations should help you in planning your installation. It is suggested that you take advantage of the experience of one of the many authorized General Electric Two-Way Radio Service Stations by having them install your new station combination and make the final adjustments.

Before starting your installation, study this manual carefully. A well-planned installation is neat, easy for the serviceman to service, and offers protection for the equipment and cables.



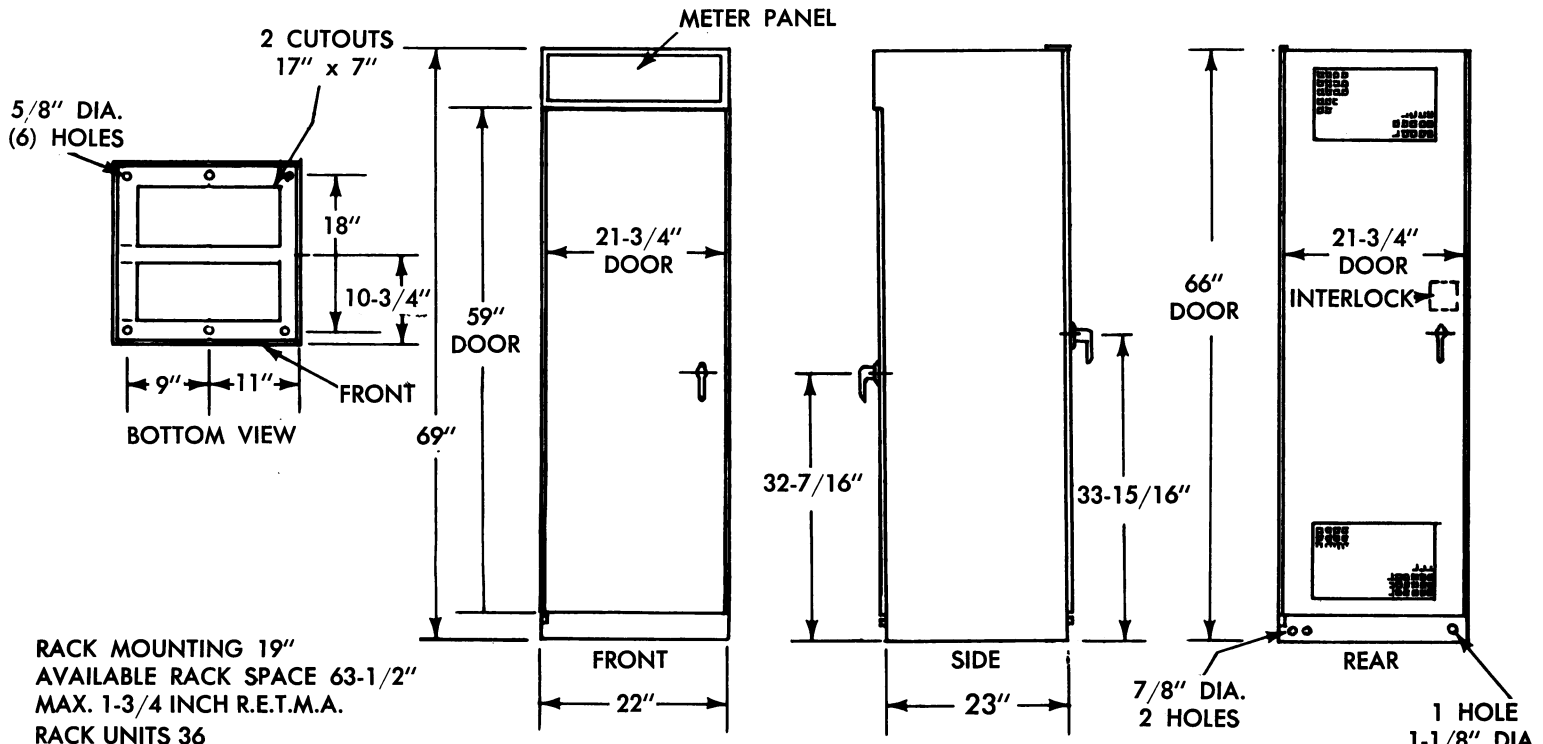
Typical Station Installation

The station location should be carefully chosen. Availability of reliable power must be considered when selecting a site. The power line may have to be extended to reach your Repeater Station site. Contact your local power company concerning power line arrangements to your Remote or Repeater Station locations. Availability of telephone lines for Remote Control can be obtained from your telephone company.

Your station cabinet occupies a floor area of 22 inches by 23 inches. Be sure to allow sufficient space in front of—and behind—the cabinet to permit front and rear doors to open completely. Either door may be removed, inverted, and hinged on the opposite side if desired.

Three knockouts are located along the rear bottom edge of the cabinet for cable entry. If it is desirable to bring the cables up through the floor, the cabinet can be situated over the power receptacle or cable hole on the floor. Conduit may be extended into the cabinet through one of the two 7-inch by 17-inch baseplate openings in the cabinet bottom. A cable entry hole (2" x 1") is located in the top rear of the cabinet to bring in the antenna cables or conduit from above the station. The front and back sides of the station must always be accessible for the serviceman.

Holes are located on the bottom for bolting the cabinet securely to the floor with 1/2" bolts.



Outline Diagram of Floor-Mount Station

POWER AND GROUND REQUIREMENTS

A separate 15- or 20-ampere, 117-VAC 50/60-Hertz electrical circuit should be provided for the station. The 15-foot power cable from the station is provided with a 3-prong plug. One of the prongs grounds the station to protect personnel. A 2-prong adapter with grounding lug may be used to connect the station to a 2-prong power receptacle—until a 3-prong outlet can be installed. When the 2-prong adapter is used, the attached ground wire must be connected to the building ground. Unscrew one power receptacle front plate screw and attach the ground wire lug under the screw and tighten. Make a continuity check between station equipment rack and a point known to be ground to be sure a good ground connection has been made.

An optional 220/117 Volt AC Stepdown Transformer Kit is available when the AC input source is 220 volts.

The cabinet rear door is interlocked to protect personnel from contact with high voltages. Key locks are provided on front and rear doors to prevent tampering by unauthorized personnel.

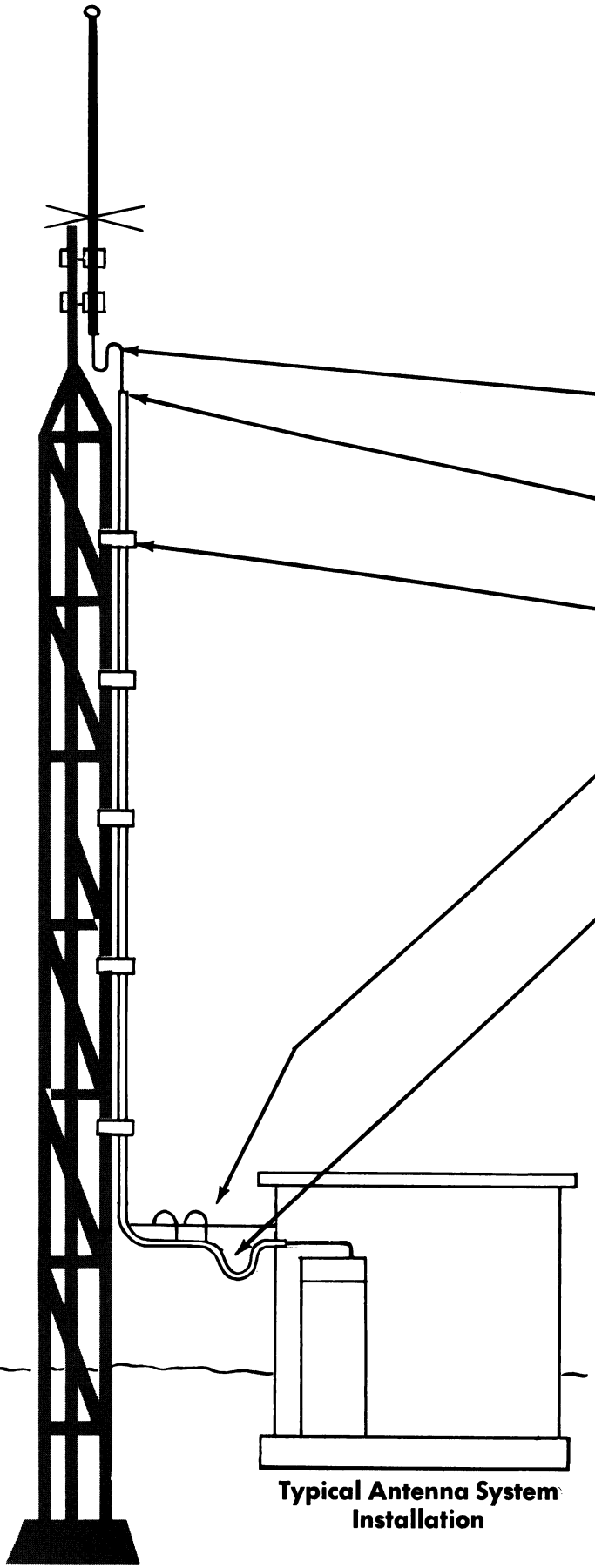
ANTENNA REQUIREMENTS

The antenna should be located as close as possible to the station, so that the antenna transmission line can be kept short. Receiving and transmitting efficiency decreases as the length of the transmission line increases.

The antenna, tower, or other antenna supports, and transmission line are ordered separately from the station combination, but proper installation of the antenna is essential for proper operation of the radio system. The system will not perform satisfactorily unless the antenna is installed in accordance with good engineering practice.

Install the station antenna following the instructions furnished with the antenna.

To supplement the manufacturer's instructions, the following hints will be valuable to you when installing your antenna:



Typical Antenna System Installation

- Antenna should not be located in an area of a strong "electrical noise". It should be located at least several hundred feet from high tension power lines, internal combustion engines, heavy electrical machinery, and other "radio-frequency devices".

- Check transmission line and connectors for opens and shorts before installing.

- Leave some slack between top of the transmission line and antenna.

- Tape, or otherwise protect in-line fittings from weather.

- Clamp the line to the tower every five feet. Use wraplock on Heliax® or RG-17/U type cable. Use vinyl tape on Foamflex® or RG type cable.

- Use "messenger" cable to support transmission line from tower to radio building, if distance is more than eight feet.

- Make a "drip-loop" in the transmission line just before line enters the building.

- Check continuity between transmission line ground and building ground before transmission line is attached to station. They should be at the same potential.

- Keep transmission line away from all sharp edges. Do not make sharp bends.

- Upon completion of antenna installation, measure and record the antenna system V.S.W.R. at the transmitter antenna connector.

TELEPHONE LINE REQUIREMENTS

Remote Control Stations require the use of telephone lines between the station and the Remote Control Unit. Information for selecting the type of telephone lines to be leased is usually provided in the instruction manual for the Remote Control Unit.

There are three types of telephone lines in common use for remotely controlling a base station:

Method	Description	Advantages or Disadvantages
1	*One metallic pair:* for both audio and control voltages with control voltage simplexed from line to line.	Economical; dependable where earth currents may be large; keying clicks will be heard in paralleled Remote Control Units.
2	*One metallic pair:* for both audio and control voltages with control voltage simplexed from line to ground.	Economical; earth ground currents (encountered near power company substations) may interfere with control functions; keying clicks minimized.
3	*Two telephone pairs:* one for audio voltage and one for control voltage (metallic pair).	Provides best performance; keying clicks will not be heard; least susceptible to earth ground currents which may interfere with control functions.

In choosing one of these methods, consider *both* cost and performance. One of the methods will usually have a decidedly lower rate. Local telephone companies will sometimes offer no choice of these methods, but will provide an audio pair and a control pair (Method 3). Instructions for connecting the station, using any one of the three methods, are provided in this installation manual.

BLOWER OPERATION

Blowers are used to air-cool the transmitter (in all stations) and power amplifier (in high power stations). The transmitter blower operates only when the transmiter is keyed or when ambient temperature exceeds the operating level of the thermostat switch. The power amplifier blower operates continuously as long as the power switches are ON.

An optional cabinet blower is available for continuous duty and/or high temperature operation.

INSTALLING YOUR FLOOR MOUNT STATION

Make the cable connections to the Floor Mount Station as described on Page 7 or Page 8.

REMOTE CONTROL AND REPEATER CONTROL CONNECTIONS For Medium Power Floor Mount Stations

(1) Make power connections:

117VAC { hot wire to TB706-2.
neutral wire to TB706-1.

green ground wire to chassis mounting rack.

(2) Remote ONLY—
Connect antenna to ANT jack. Tighten strain-relief cable clamp at entry hole.

(3a) Repeater ONLY—
Connect receive antenna to left ANT jack.

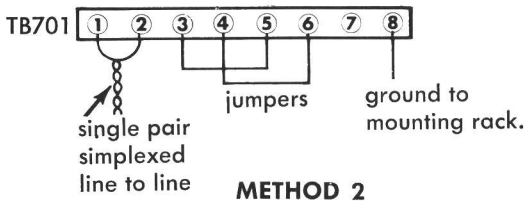
(3b) Repeater ONLY—
Connect transmit antenna to right ANT jack.
Tighten strain-relief cable clamp at entry hole.

(4) Connect speaker or a 3.5 ohm, 4-watt resistor from TB501-11 to TB502-5. Mount speaker case bracket to convenient location on mounting rack.

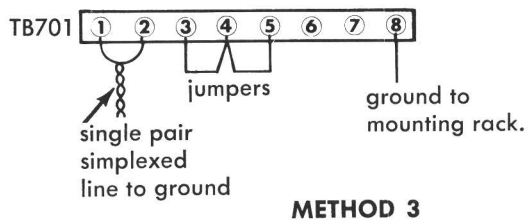
(5) Connect mike cable to J902. Screw mike holder bracket to rack.

(6) Remote ONLY—
Connect telephone lines using AWG #16 double-jacketed polyurethane wire. (supplied by installer)

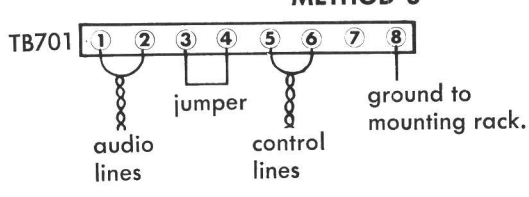
METHOD 1

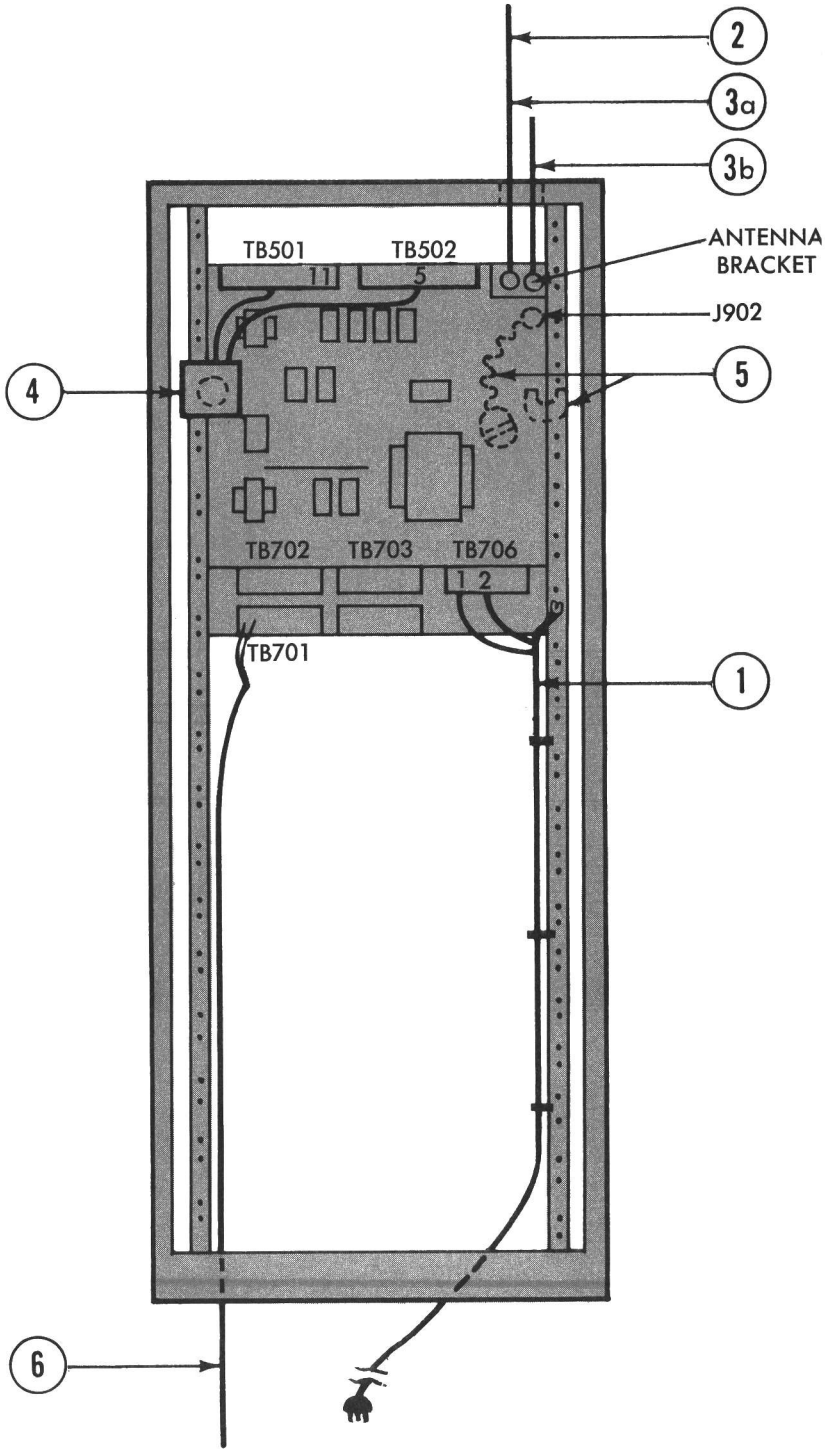


METHOD 2



METHOD 3

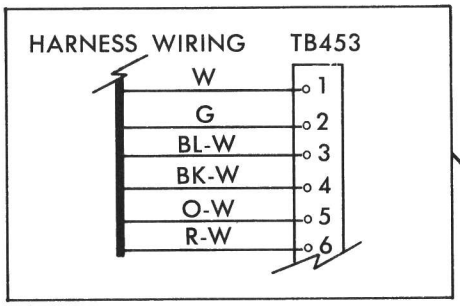




RECHECK ALL CONNECTIONS BEFORE TURNING POWER ON.

REMOTE CONTROL AND REPEATER CONTROL CONNECTIONS For High Power Floor Mount Stations

1a Mount Transformer Panel in Cabinet. Connect 6 harness wires to TB453 and connect the #147 white wire to the left screw terminal on the high voltage indicator light board as shown.



1b Make power connections:

117VAC { hot wire to TB706-2. neutral wire to TB706-1.

green ground wire to chassis mounting rack.

2a Remote ONLY—
Connect antenna to top socket on ANT relay on Power Amplifier.

2b Remote ONLY—
Connect a piece of coax from rear socket on ANT relay to ANT jack on power Supply. Tighten strain-relief cable clamp at entry hole.

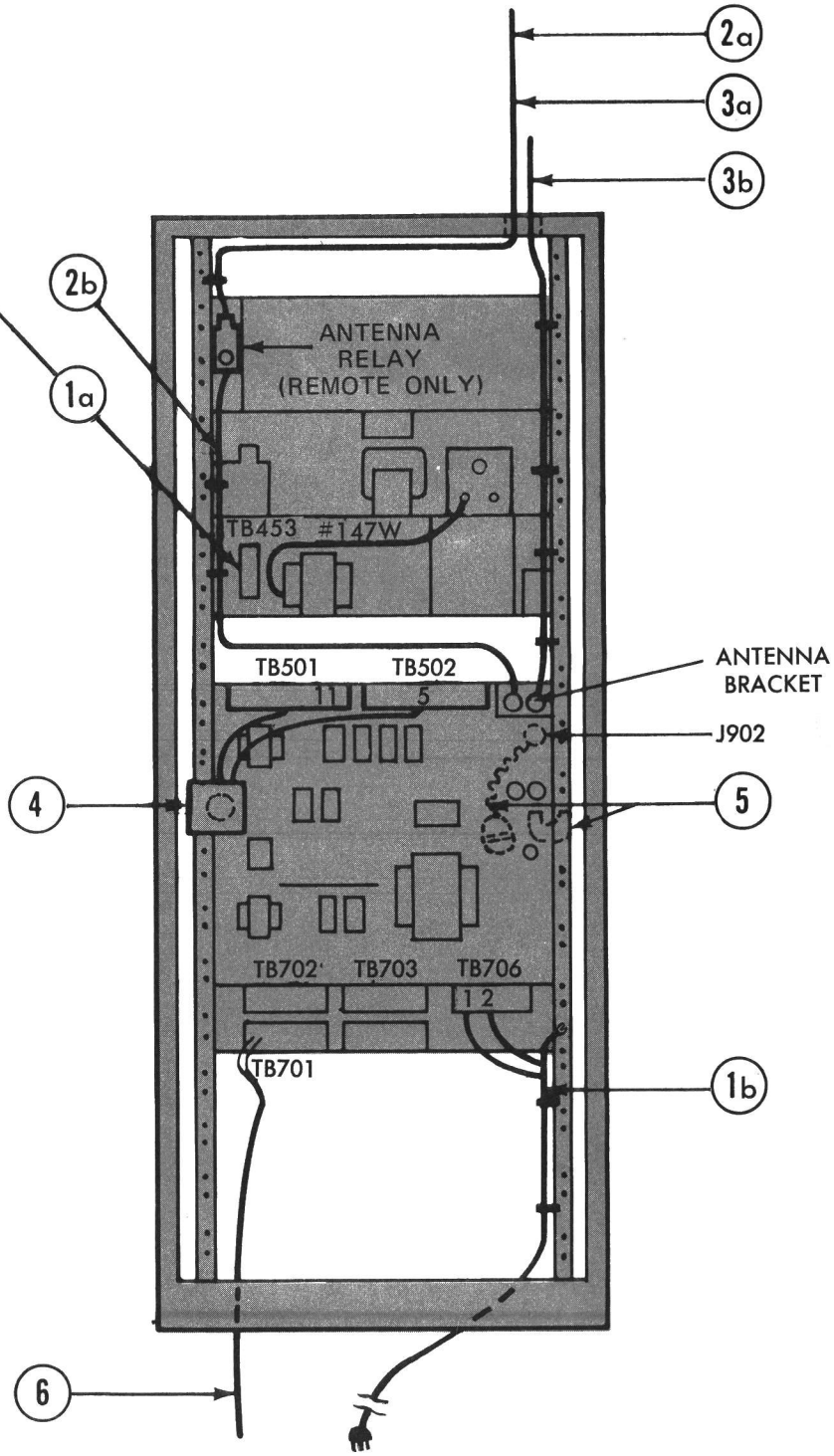
3a Repeater ONLY—
Connect transmit antenna to Power Amplifier output connector P2.

3b Repeater ONLY—
Connect receive antenna to ANT jack on Power Supply Type EP-38-A. Tighten strain-relief cable clamp at entry hole.

4 Connect speaker or a 3.5 ohm, 10-watt resistor from TB501-11 to TB502-5. Mount speaker case bracket to convenient location on mounting rack.

5 Connect mike cable to J902. Screw mike holder bracket to rack.

6 Remote ONLY —
Connect telephone lines as indicated by step 6 of Medium Power Station connections (page 7).



RECHECK ALL CONNECTIONS BEFORE TURNING POWER ON.

FINAL CHECKS BEFORE PLACING YOUR "VM" STATION IN OPERATION

After completing the installation of your Floor Mount Station, the following final operations should be performed:

• Final adjustments should be made to the receiver, transmitter and power supply—Transmitter adjustments must be made by a 1st or 2nd Class Radiotelephone or Radiotelegraph licensed electronic technician. Instructions for making these adjustments are included in the Station Maintenance Manual. The adjustments include:

Transmitter—
- final tuning and loading
- deviation and frequency checks
- plate power input

> Transmitter measurements should be entered in the permanent station records along with the signature and license number of the technician.

Receiver—
- matching to antenna and netting frequency to transmitter

Power Supply—
- VOLUME and SQUELCH controls
- Turn Switch S501 to ON

Control Panels—
- 4KC16A10-12 — Remote — adjust audio level control. Turn switch S701 to ON.
- 4KC19A10 — Repeater — adjust audio coupler level control. Turn Switch S701 to ON.

- Be sure the station license is displayed as required by FCC rules.
- A transmitter identification card (FCC Form 452-C or G-E Form ECP-82A) must be attached to the transmitter when the transmitter is not in view or accessible to the operator.
- Give the alignment tools to the maintenance technician.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

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